

EXHIBIT F



OCEAN TOMO

INTELLECTUAL CAPITAL EQUITY

ORACLE AMERICA, INC.

v.

GOOGLE INC.

CASE NO. CV 10-03561 WHA

EXPERT REPORT OF JAMES E. MALACKOWSKI

[CORRECTED]

January 8, 2016



1. FIRM BACKGROUND AND QUALIFICATIONS.....	3
2. ASSIGNMENT	4
3. SUMMARY OF OPINIONS	8
4. THE RELEVANT ENTITIES	10
4.1 SUN MICROSYSTEMS, INC. (“SUN”).....	10
4.2 ORACLE AMERICA, INC.	12
4.3 GOOGLE INC.....	14
5. THE DISPUTE	16
5.1 PROCEDURAL BACKGROUND.....	16
5.2 THE EVOLUTION OF GOOGLE’S ANDROID BUSINESS.....	17
6. THE JAVA PLATFORM	19
6.1 COMPONENTS OF THE JAVA PLATFORM.....	20
6.2 THE POPULARITY AND SUCCESS OF JAVA.....	21
7. THE EVOLUTION OF THE MOBILE INDUSTRY	24
7.1 THE GROWTH OF WIRELESS CONNECTIVITY.....	25
7.2 THE GROWTH OF MOBILE DATA USAGE AND APPLICATIONS	28
7.3 SMARTPHONE ANNUAL UNIT SALES AND CONNECTIONS.....	39
7.4 MOBILE OPERATING SYSTEM WORLDWIDE UNIT SALES AND MARKET SHARE	40
7.5 APPLE INTRODUCES THE IPHONE/IPAD IN JANUARY 2007.....	42
8. GOOGLE’S MOBILE BUSINESS STRATEGY	44
8.1 GOOGLE USES JAVA TO DEVELOP THE ANDROID PLATFORM	49
8.2 GOOGLE ESTABLISHES DISTRIBUTION PARTNERSHIPS	59
8.3 CURRENT AND ANTICIPATED ANDROID DEVICES AND USES	63
8.4 UNIQUE WINDOW OF MARKET OPPORTUNITY.....	68
9. MONETARY RECOVERY FOR COPYRIGHT INFRINGEMENT	71
10. ORACLE’S ACTUAL DAMAGES	72
10.1 ORACLE’S JAVA ME LOST PROFITS	72
10.2 JAVA FX MOBILE (“ACADIA”)	81
10.3 OTHER ACTUAL LOSSES	85
11. GOOGLE’S PROFITS ATTRIBUTABLE TO THE INFRINGEMENT	85
11.1 CAUSAL NEXUS FOR THE REVENUES ATTRIBUTABLE TO THE INFRINGEMENT	85
11.2 QUANTIFICATION OF ANDROID-RELATED REVENUES	114
11.3 QUANTIFICATION OF INFRINGEMENT-RELATED COSTS AND EXPENSES	118
11.4 SUMMARY OF PROFITS ATTRIBUTABLE TO THE INFRINGEMENT	122
11.5 EVIDENCE SUPPORTING THE PROFITABILITY OF ANDROID.....	122
12. STATUTORY DAMAGES.....	125
13. PREJUDGMENT INTEREST	125
14. SIGNATURE	126
JAMES E. MALACKOWSKI.....	126



1. FIRM BACKGROUND AND QUALIFICATIONS

1. My name is James E. Malackowski and I am the Chairman and Chief Executive Officer of Ocean Tomo. Ocean Tomo provides financial products and services related to intellectual property, including expert testimony, valuation, strategy consulting, proprietary research products, investment services, risk management products, innovation management services and transaction brokerage.
2. Prior to forming Ocean Tomo, I served as a finance and investment advisor working with one of the nation's oldest investment banks as well as one of Chicago's largest private equity firms. I began my career by spending fifteen years as a management consultant and forensic accountant focused on intangible assets. In this capacity, I served numerous roles as a founding principal including Chief Executive Officer of my prior firm.
3. I have served as a consultant for clients and counsel on business valuation issues as well as all phases of the technology transfer process. I have experience as a Board Director for leading technology corporations as well as companies dealing with brand management issues. I have served in a leadership role with numerous corporate and not-for-profit entities. I am a Past President of The Licensing Executives Society International, Inc., as well as its largest chapter, LES USA & Canada, Inc.
4. Today, I focus my non-for-profit efforts with organizations leveraging science and innovation for the benefit of children or lesser developed countries. I am a Director of Children's Memorial Research Center, an affiliate of Children's Memorial Hospital in Chicago and have served since 2002 as a Trustee or Director of Invent Now, Inc., an organization providing summer enrichment programs for more than 80,000 students annually. I am the founder of the Chicago based Center for Applied Innovation (CAI), an Illinois nonprofit corporation created to manage education, public policy outreach and related economic activity around applied technology and intellectual property rights with a focus on technology transfer to lesser developed countries.
5. I am a founding and continuous member of the IP Hall of Fame Academy. The IP Hall of Fame was developed by Intellectual Asset Management (IAM) Magazine to honor the achievements of men and women who have made an outstanding contribution to the development of today's IP system and its role as an enhancer of lives across the world. Inductees are chosen each year by the IP Hall of Fame Academy from nominations sent in by members of the global IP community.
6. I have been recognized annually since 2007 by leading industry publications as one of the fifty most influential people in intellectual property and/or one of the "World's 300 Leading IP Strategists." In 2011, I was selected by the World Economic Forum as one of fewer than twenty members of the Network of Global Agenda Councils to focus on questions of IP policy. In 2013, I was inducted into the Chicago Area Entrepreneurship Hall of Fame by the Institute for Entrepreneurial Studies at the University of Illinois at Chicago College of Business Administration.



231. I also understand that, had Google chosen to make its own code offering for these 37 APIs, it likely would have suffered initially from errors and instability.⁴⁸⁴ Mr. Ghuloum indicated the problems inherent in unstable code when he said “Yeah, absolutely. We switched our runtime over, and there were growing pains associated with that.”⁴⁸⁵ Therefore, I understand that any code that Google independently developed in order to meet its two-year target for market introduction, would have risked disappointing (and perhaps alienating) developers and consumers alike. Copying the Infringing Java Copyrights therefore provided Google with the ability to meet its specific timing window with a stable and familiar API from the Java platform, thus capitalizing upon the same potential market opportunity that Sun lost with Acadia.⁴⁸⁶
232. ***Lack of Available Alternatives:*** In addition to providing Google with the benefits described above, I also understand there were no commercially acceptable alternatives available to Google given its perceived market risks, other than to utilize the Infringed Java Copyrights as it did.
233. As an example, I understand Google did in fact consider using Microsoft’s C# language and the .NET framework as an alternative to Java, however, each of those alternatives is proprietary to Microsoft and would have necessitated a license between Google and Microsoft.⁴⁸⁷
234. Although Google could also have attempted to use C++ this would not have offered a built-in developer base with as many programmers as the Java platform, and created portability issues which Java did not have.⁴⁸⁸ Objective-C was also evaluated as an alternative but Mr. Ghuloum explained that it would have been difficult to gain developer acceptance since “Objective-C is a fairly idiosyncratic language ... and clamped on this alternative syntax and alternative semantics, so I think there might have been a taste factor.”⁴⁸⁹ Finally, Google could have developed its own language, but it would be slow to develop and would not have a strong initial programmer base. Mr. Hasan Rizvi, Senior Vice President of Development for Oracle, testified that “*even a company like Google chose Java because they didn't want to go try and invent a new language. So coming up with a new language is a big deal.*”⁴⁹⁰ Further, “*Java is the most widely adopted platform in the history already; the most developers, the most devices, et cetera.*”⁴⁹¹ Furthermore, Mr. Bornstein enumerated reasons for the preference of Java for Android as follows:

“[t]here was a good open source community around developers that use the Java programming language. There were good tools, such as Eclipse, that were other open source tools that worked with

⁴⁸⁴ Expert Report of Chris F. Kemerer, January 8, 2016, p. 33.

⁴⁸⁵ Deposition of Anwar Ghuloum, December 9, 2015 at p. 150.

⁴⁸⁶ Expert Report of Chris F. Kemerer, January 8, 2016, p. 35.

⁴⁸⁷ Email between Andy Rubin and Larry Page, October 11, 2005, GOOGLE-01-00019527 – 528 at 528; Deposition of Andrew Rubin, April 5, 2011, p. 107.

⁴⁸⁸ Email from Brian Swetland to Mathias Agopian et al, January 2, 2006, GOOGLE-01-00019511 –513 at 512.

⁴⁸⁹ Deposition of Anwar Ghuloum, dated December 9, 2015, p. 114.

⁴⁹⁰ Deposition of Hasan Rizvi, dated July 28, 2011, p. 211.

⁴⁹¹ Deposition of Hasan Rizvi, dated July 28, 2011, p. 239.



The Impact of the Infringed Java Copyrights on Google's Market Opportunity

241. The Infringed Java Copyrights were essential for Google to establish Android in the wake of Apple's market entry and intense competitive pressure from Facebook. The rapid growth of the wireless industry and the infrastructure for significant mobile data bandwidth marked the widespread adoption of mobile devices and a fundamental and permanent shift from desktop to mobile internet access. The resultant window of opportunity would not have been available to Google without the marketplace business advantages provided by the Infringed Java Copyrights. Google recognized that it had to exploit this unique timing window in order to avoid having its services excluded by others from their platforms. All of Google's top executives agreed that one of their chief objectives for Android was to ensure control over a platform and to avoid the significant threat of such exclusion.⁵⁰³ Google felt intense time pressure to get Android to market.⁵⁰⁴ The stability and maturity of the existing Java API and its built-in developer base made it the only commercially viable choice for Google to reach its defined target timing window, in order to ensure the continued viability of its core search services on the mobile platform, and eventually every platform.
242. Given the above and other record evidence in this case, it is my opinion that a significant portion of the revenue Google has realized through the Android platform is causally connected to the Infringed Java Copyrights. The Android platform cannot exist without and disproportionately relies upon the Infringed Java Copyrights; in addition, the Infringed Java Copyrights were the only available option to succeed in the time window that Google required. Google's mobile strategy depended on the Android platform, and that platform depended upon the Infringed Java Copyrights. Google would not have earned tens of billions of dollars of Android revenue without the Android platform. In my opinion, Google's Android revenue is attributable in significant part to the Infringed Java Copyrights.
243. That Google has realized revenue because of the platform (and thus the Infringed Java Copyrights) is supported by the following slide taken from a Google Quarterly Review presentation to the Android Operating Committee which states that Android "spreads value" by having a "direct revenue impact."⁵⁰⁵

⁵⁰³ GOOGLE-01-00056184 – 187 at 187; GOOGLE-22-00171914 – 951 at 923.

⁵⁰⁴ OAGOOGL0004936380 – 436 at 404.

⁵⁰⁵ GOOGLE-21-00008118 – 139 at 130; GOOGLE-21-00008116 – 117.



I have not prepared any prejudgment interest calculations as of this date, but am prepared to do so if requested by the Court.

14. SIGNATURE

I declare under penalty of perjury that the forgoing is a true and correct summary of my opinions in this matter,

James E. Malackowski

January 8, 2016